



INTERNATIONAL
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2016 Top Markets Report **Construction Equipment**

A Market Assessment Tool for U.S. Exporters

May 2016



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Executive Summary

Construction machinery manufacturers and producers of related parts and equipment in the United States have enjoyed sustained success, both at home and abroad. Products in this sector are necessary for the completion of new residential and commercial construction and infrastructure, as well as the maintenance and expansion of existing buildings, roads, transportation routes, water and sanitation facilities. U.S. manufacturers are among the world's most recognized brands, and the combination of recognition and global demand for these products has fueled an 89.4 percent growth in U.S. exports and a 4.07 percent compound annual growth rate (CAGR) from 2000 to 2015.

Over the past five years, however, a number of factors have affected U.S. exports of construction machinery. Even after recouping many of the losses from the 2008 to 2009 global recession, U.S. construction equipment exports are still at an eight-year low. U.S. producers continue to face strong competition from sophisticated manufacturers in Western Europe, Japan and South Korea. These manufacturers offer products that compete favorably with U.S. producers on productivity, reliability and level of technology. Increased competition from Chinese manufacturers is also influencing market shares globally. The value proposition of less productivity, reliability and technology in exchange for a lower purchase price provides Chinese producers with a unique market niche. Persistently low commodity prices have dampened the demand for all producers of construction machinery, and related parts and equipment, particularly in commodity export-driven economies. Finally, economic factors in traditionally strong export markets, such as China and Brazil, have driven sector exports down by over 25 percent in the past five years to a total of \$32.6 billion in 2015. Therefore, it is essential for U.S. manufacturers to identify and focus on markets with the most potential to sustain exports in the near, medium and long-term. This report examines the global export market for construction machinery and related equipment and parts with the goal of identifying the top markets for U.S. sector exports.

ITA's methodology for identifying these top markets considered historical export trade data as well as factors, or "drivers," of global sector trade. After identifying these export drivers, ITA collected quantifiable and consistently defined data on a country-specific basis, assigned numerical values to these drivers, and aggregated the weighted average values of export trade data and each of the export drivers in order to arrive at a final numerical score for each market. In ITA's view, the resulting list of top markets represents some of the best opportunities for U.S. construction machinery and related parts and equipment manufacturers to sustain and carry this sector's export growth forward. This report also identifies global challenges and barriers to export, as well as opportunities for export growth. Finally, case studies are included which take a more in-depth look at five countries.

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Overview and Key Findings

Introduction

Construction machinery manufacturers and producers of related parts and equipment have provided a historically steady and reliable source of exports for the United States. Over the past five years, however, a number of factors have greatly affected U.S. exports of construction machinery. Long-term effects of the 2008 to 2009 global recession; strong competition from sophisticated manufacturers in Western Europe, Japan and South Korea; proliferation of low-cost products from China; continued low commodity prices; and a number of economic factors in traditionally strong markets have driven U.S. sector exports down more than 25 percent in the past five years to a total of \$32.6 billion in 2015. With many of these factors likely to persist, it is vital for U.S. manufacturers to identify and focus on markets possessing factors that drive demand for construction machinery. This report will provide an overview of the global and U.S. markets for construction machinery (and its related parts and equipment), identify factors that drive export demand for U.S. manufacturers, and discuss what the International Trade Administration considers to be top markets for exports, along with more detailed examinations of selected markets.

Key Findings: Top Markets and Methodology

Findings

This report examines the U.S. construction machinery and related parts and equipment industries (hereafter referred to collectively as the “CE sector” or “CE”) with the goal of achieving sustainable export growth. To achieve this goal, ITA used a combination of historical trade data and a weighted average analysis of factors that, in ITA’s view, influence export demand for CE sector products. This analysis yielded the list of top markets as identified in Figure 1.

Methodology

ITA’s methodology for identifying top markets for U.S. CE sector exports utilized a combination approach that considered historical export trade data as well as factors, or “drivers,” of global CE sector trade. In ITA’s view, export data provided a quantifiable evaluation of top U.S. CE sector export markets from a historical perspective. For the historical sector export analysis, the CE sector was identified and markets ranked using the following North American Industry Classification System (NAICS) codes:

- **333120 Construction Machinery Manufacturing:** This industry is comprised of establishments primarily engaged in manufacturing construction machinery, surface mining machinery, and logging equipment.
- **333131 Mining Machinery and Equipment Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in (1) manufacturing underground mining machinery and equipment, such as coal breakers, mining cars, core drills, coal cutters and rock drills, and (2) manufacturing mineral beneficiating machinery and equipment used in surface or underground mines.
- **333618 Other Engine Equipment Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing internal combustion engines (except automotive gasoline and aircraft).
- **333995 Fluid Power Cylinder and Actuator Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and pneumatic) cylinders and actuators.
- **333996 Fluid Power Pump and Motor Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and

Figure 1: Top 25 Markets for Construction Equipment

1. Canada	7. Japan	13. India	19. South Korea	25. South Africa
2. China	8. Qatar	14. Sweden	20. Netherlands	
3. Singapore	9. United Arab Emirates	15. Mexico	21. France	
4. Australia	10. Saudi Arabia	16. Malaysia	22. Belgium	
5. United Kingdom	11. Brazil	17. Russia	23. Indonesia	
6. Germany	12. Chile	18. Norway	24. Thailand	

pneumatic) pumps and motors.

Based upon its understanding of the global CE sector market, ITA then examined a number of factors that drive export demand for CE sector products. The following factors were selected based on the ready availability of quantifiable and consistently defined data on a country-specific basis:

- *Infrastructure development*: Global infrastructure development is perhaps the primary driver of CE export growth and sustained demand. Building new infrastructure and maintaining existing infrastructure require large amounts of construction machinery to accomplish.
- *Residential and commercial construction*: Similar to infrastructure development and maintenance, residential and commercial construction activities require large amounts of construction machinery.
- *Economic activity*: Producing, buying, or selling products or services are a driver for the construction of commercial property that is necessary to produce, buy and sell goods and services. Consumers engaging in these activities are, in turn, potential buyers of new homes/residential construction. In addition, economic activity requires adequate infrastructure to move goods and services from producer to seller to buyer.

Numerical values were assigned to trade data and export drivers, and the weighted average values for each were aggregated to arrive at a final numerical score for export markets. In ITA's view, this list of markets represents some of the best opportunities for U.S. CE sector players to sustain and carry CE sector export growth forward. For a detailed explanation of the report methodology, please see Appendix 1.

Industry Overview and Competitiveness

Definition of CE Sector and Scope of Report

Although the structure varies somewhat by country, region, and level of economic and technological development, global construction machinery and its related parts and equipment industries are a diverse mix of multibillion-dollar and multinational corporations, smaller specialty manufacturers, and small and medium enterprises (SMEs). These companies manufacture machinery used in all

phases and types of construction, mining, and forestry operations, as well as service and repair parts for these machines. Many of the larger CE manufacturers operate as a vertically integrated entity. These companies manufacture construction machinery and service and repair parts for their construction/mining/forestry machinery products. In some cases, they even manufacture repair and service parts for competitors. In addition to these large, vertically integrated businesses, first, second and third tier associate and/or independent suppliers also participate in the CE sector. These companies may manufacture specialty CE equipment, provide service and repair parts to construction equipment manufacturers and construction machinery owners, or some combination of these.

This report does not include a discussion of remanufactured (reman) CE sector products. The reman subsector has unique challenges, opportunities and barriers to trade different from those related to construction/mining/forestry equipment and associated "new" service and repair parts.

Global and U.S. CE Sectors

The global CE sector has long been dominated by manufacturers in North America, Western Europe, Japan and South Korea, due in large part to the comparative advantages of these manufacturers' products. Generally speaking, the economics of construction activities require equipment that operate efficiently, economically and with minimal downtime. In some cases, such as large mining operations, 24-hour continuous operation of machinery is necessary. To achieve this goal, purchasers of construction machinery look for products with the following qualities:

- *Productivity*: ability to move large quantities of material from point to point as quickly as possible
- *Reliability*: ability to operate with minimal downtime for scheduled service or unscheduled breakdowns
- *Level of advancement in technology*: utilizes the best available technology to increase machinery productivity and reliability

U.S. CE manufacturers produce construction machinery and related repair and service parts that

offer their customers these qualities with a productive and reliable equipment solution. Specific U.S. CE sector advantages include the following:

- *Technologically superior products:* U.S. CE products in general, and construction and mining machinery in particular, are generally on par with Western European and Japanese competitors. Technologically superior products increase productivity and reliability, as well as reduce operating and service costs for users.
- *Parts and product support network:* Most U.S. construction and mining machinery manufacturers operate and maintain a global parts and service network to support their products. Construction machinery downtime is a significant cost, so owners are inclined to purchase machines with a strong supporting network.
- *IT enhanced maintenance and support:* U.S. CE manufacturers have embraced the use of technology-equipped machinery to monitor operating environment, machinery conditions and other external factors to deliver better control over the health of machinery. Programs such as Caterpillar's CAT Connect and Minestar¹ and Deere's Condition Based Maintenance² help owners minimize downtime and increase operating efficiency through monitoring machinery location, operator performance, load haul cycle times, maintenance requirements, and more.³

The relative advantage American, Western European and Japanese CE manufacturers have enjoyed over other competitors is narrowing, however. Chinese CE sector manufacturers in particular have made steady progress in building more productive, reliable and technologically advanced products while still maintaining a cost advantage relative to the United States and others. In addition, these manufacturers are taking innovative steps to offer parts and product support networks for their products similar to those of U.S. manufacturers. For example, International Construction Products (ICP), a North American owned and operated company, has partnered with a number of Chinese CE manufacturers to sell and support construction equipment from several Chinese brands through an online marketplace. Customers can research and buy construction machinery, parts, and related equipment, and arrange for comprehensive product support options using ICP's online tools.⁴

Global Industry Landscape

U.S. CE exports are trending downwards globally and regionally. Despite a partial recovery from the 2008 to 2009 global recession, U.S. exporters still face significant headwinds in reversing this downward trend in the short-term. The data provided in Figures 2-4 on U.S. CE sector exports is available through the United States International Trade Commission (USITC) Interactive Tariff and Trade Data Web. In addition to the following brief comments on global and regional trends, more detailed discussions can be found in our examinations of selected markets.⁵

Figure 2: U.S. CE Sector Global Exports 2011 to 2015

Total Exports 2011 to 2015: \$203.7 billion
2011: \$43.7 billion
2015: \$32.6 billion
Total Cumulative Growth/Contraction:
-25.3 percent
CAGR: -5.7 percent

Figure 3: Top Five Export Markets 2011 to 2015

Canada: \$54.2 billion
Mexico: \$31.0 billion
Australia: \$13.7 billion
China: \$9.9 billion
Brazil: \$7.6 billion

Comments: The top three CE sector export markets are free trade agreement (FTA) partners with the United States. Exports to the fourth and fifth largest export markets, China and Brazil, have experienced steady declines since their respective 2011 highs.

Challenges and Barriers

Challenges and barriers to U.S. CE sector exports have not only slowed growth, but also led to contractions in export volume in many markets. Market specific challenges and barriers to export will be addressed in individual case studies.

Figure 4: U.S. CE Sector Exports by Region

Latin America

Total Exports 2011 to 2015: \$60.2 billion
2011: \$11.9 billion
2015: \$9.9 billion
Cumulative Growth/Contraction: -16.6 percent
CAGR: -3.6 percent

Top Five Markets 2011 to 2015
Mexico: \$31.0 billion
Brazil: \$7.6 billion
Chile: \$6.6 billion
Peru: \$3.7 billion
Colombia: \$3.3 billion

Comments: After peaking in 2012, U.S. CE sector exports to Latin America began a region-wide decline, driven largely by sharp losses in four of the top five markets (Brazil, Chile, Peru and Colombia). Despite solid, multi-year growth from 2011 to 2014, U.S. CE sector exports to Mexico declined 21.5 percent in 2015.

EU

Total Exports 2011 to 2015: \$25.5 billion
2011: \$5.5 billion
2015: \$4.5 billion
Cumulative Growth/Contraction: -21.7 percent
CAGR: -3.9 percent

Top Five Markets 2011 to 2015
United Kingdom: \$5.7 billion
Belgium: \$5.6 billion
Belgium: \$4.6 billion
France: \$2.1 billion
Netherlands: \$1.9 billion

Comments: Although U.S. CE sector exports to the EU fell by 21.7 percent over the past five years, a number of EU markets outside the top five experienced overall export growth. This growth was mainly in Eastern Europe (Czech Republic, Hungary, Romania and Bulgaria).

Asia

Total Exports 2011 to 2015 - \$26.2 billion
2011: \$6.3 billion
2015: \$3.9 billion
Cumulative Growth/Contraction: -38.5 percent
CAGR: -9.2 percent

Top Five Markets 2011 to 2015
China: \$9.9 billion
Singapore: \$4.2 billion
Japan: \$2.6 billion
India: \$2.3 billion
South Korea: \$2.2 billion

Comments: Relatively flat U.S. CE sector export growth to Asia from 2011 to 2014 has given way to much larger declines in almost all markets in 2015. One notable exception is Vietnam. Although not a top five market, U.S. CE sector exports to Vietnam grew 54.8 percent over the five-year period 2011 to 2015.

Africa

Total Exports 2011 to 2015: \$9.4 billion
2011: \$2.0 billion
2015: \$1.3 billion
Cumulative Growth/Contraction: -34.2 percent
CAGR: -8.0 percent

Top Five Markets 2011 to 2015
South Africa: \$4.8 billion
Egypt: \$702 million
Nigeria: \$573 million
Ghana: \$386 million
Algeria: \$348 million

Comments: U.S. CE sector exports to South Africa from 2011 to 2015 were over 600 percent higher than the next largest market. Overall regional growth in the past four years was relatively flat; regional export performance, however, mirrored overall global and declined sharply in 2015.

Localization/relocation of manufacturing and domestic production programs

In efforts to maximize regional labor/production/financial incentives offered by globalized production and longer supply chains, many CE sector manufacturers, including those in

the United States, have moved towards more “globalized” production of CE sector products. In the wake of the 2008 global recession, however, many CE sector manufacturers are retooling globalized production operations towards a more localized model emphasizing production in the market of exports and sales. By shortening supply chains and

producing in local markets, CE sector manufacturers hope to reduce the impact of delays in shipments, customs challenges, and currency fluctuations. While localized manufacturing reduces the impact of these issues, it negatively impacts export opportunities for CE sector producers in these markets.

In conjunction with unilateral moves to localized production by CE sector manufacturers, some countries are enacting plans to support local/domestic producers. These plans are also intended to encourage local production by foreign competitors. One of the most well-known of these plans, Plano Brasil Maior (“Greater Brazil Plan”), aims to expand access to domestic and external markets for Brazilian companies through a variety of preferential tax and financing incentives for foreign investment. Government procurement advantages for Brazilian companies and aggressive use of trade remedies, such as AD/CVD, assist Brazilian companies in accessing export markets.⁶

Dollar value vs. major currencies of trading partners

With the exception of Russia, the U.S. dollar has strengthened against the currencies of its top 25 CE sector export markets in 2015. A continued stronger dollar will increase purchase prices of U.S.-made CE sector products in comparison to direct competitors in the EU and Japan, while the price difference will widen further in China.

Commodity Prices

Continued low prices in the oil and mining commodity sectors are placing downward pressure on CE sector export growth, particularly in those countries with economies largely dependent on sales of these commodities. With commodity prices predicted to continue falling⁷, CE sector manufacturers will continue to see decreased demand for construction machinery purchases. Low ore prices are influencing the CE mining equipment subsector particularly hard, decreasing demand for mining machinery. One of the most visible examples of commodity price impact on sector demand is at Caterpillar, the largest U.S. and global CE sector manufacturer and exporter. In September 2015, the company announced a major realignment of its Mining division and the reduction of 10,000 employees by 2018 through manufacturing facility consolidations and closures.⁸ In January 2016, Caterpillar announced that company sales had

decreased for the third year in a row and 2015 profit was down 43 percent from 2014.

Economic headwinds in major export markets

Perhaps the most significant challenge for U.S. exporters, however, is the economic slowdown in several major U.S. CE sector export markets. China and Brazil are the U.S. CE sector’s fourth and fifth largest export markets respectively. Although China’s economy continues to grow, year on year double-digit GDP increases have ceased. A weakening Chinese yuan, as well as a heavy reliance on debt and investment to grow its economy, have contributed to recent stock market volatility and uncertainty about the pace of economic growth moving forward.⁹ The situation in Brazil is more serious. In addition to falling GDP, the country is facing a large and persistent budget deficit that affects the government’s ability to fund needed infrastructure improvements, which, in turn, influences construction activities and the demand for CE sector products.

Even those countries with otherwise healthy economies that rely heavily on commodity exports are facing challenges in sustaining long-term growth. Canada’s economy is quite diverse and its overall economic health is good; however, as a net oil exporter, continued low oil prices will likely impact economic growth in the near future. Countries with less diverse economies that depend more on commodity exports (western and central Africa and parts of Latin America)¹⁰ will continue to be a challenge for CE sector export markets.

Opportunities

Despite the challenges noted above, there are still numerous export opportunities for CE sector exporters. Specific opportunities will be addressed in the country case studies that follow.

Relative advantage of U.S. CE sector products

As previously noted, U.S. CE sector products are among the most productive, reliable and technologically advanced in the world. U.S. products are superior to Chinese competitors, and at least comparable to Western European and Japanese competitors. Customers who base their purchases on these competitive advantages will pay a premium for U.S. CE products over Chinese competitors.

Spending and Infrastructure Investment Climate

Infrastructure development represents the single biggest opportunity driver for U.S. CE sector export growth. Infrastructure development is, at the basic level, construction activity, and construction activity fosters demand for CE sector goods. Beyond this basic cause and effect, however, infrastructure development feeds CE sector demand indirectly through improvement in a country's investment climate. A well-developed infrastructure fuels economic development by supporting industrial growth and cross-border trade. It also facilitates the distribution of essentials like energy, water, sanitation and public services. Finally, a stable investment climate leads to a greater ability to invest in infrastructure.

A number of countries have government sponsored infrastructure development plans, and this report will address those plans in the country case study section as appropriate. In most instances, however, private financing is a key supplement to public funding of national infrastructure development

plans. For this reason, access to capital represents an opportunity for CE sector exports.

Finally, the overall health of a particular country's economy is an important and essential driver of demand for CE sector goods. Annualized GDP and GDP growth over time represent a country's ability to invest in infrastructure development and maintenance.

Completion of trade agreements

As noted above, the top three export markets for the U.S. CE sector are all FTA partners with the United States. Completion, ratification and enactment of the US-EU Transatlantic Trade and Investment Partnership (T-TIP) and the Trans-Pacific Partnership (TPP) represent strong opportunities to drive exports, particularly in Asia, where U.S. CE sector exporters often pay high tariffs in comparison to already cheaper Chinese products.

Country Case Studies

The following pages include country case studies that summarize export opportunities in selected markets. The overviews outline ITA's analysis of the U.S. export potential in each market. The markets represent a range of countries to illustrate a variety of points and not the top markets overall.

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Canada

Canada is the largest market for U.S. CE sector exporters. Sector exports of \$54.2 billion/\$10.8 billion (2011 to 2015 combined/annualized average) are over 170 percent greater than the amount of the next largest market. Construction and mining machinery make up the majority of CE sector exports. Canadian buyers prefer equipment with superior reliability and productivity, which provides U.S. producers with a relative competitive advantage. Low commodity prices continue to influence Canada's economy, which has dampened the demand for CE sector products. The country is still on track for modest economic growth, which should limit any sharp drops in sector demand.

Overall Rank

1

Canada's Export Market

Canada is by far the largest U.S. export market for CE sector products. The two countries' shared border/cultural values/business practices, membership in the North American Free Trade Agreement (NAFTA), and Canada's strong and stable economy make it one of the most important sector top markets.

For the period from 2011 to 2015, cumulative U.S. CE sector exports to Canada of \$54.2 billion (\$10.8 billion annualized average) accounted for 27 percent of the total global U.S. sector exports. U.S. exports to Canada were over 170 percent greater than the next largest export market of Mexico at \$31.0 billion. Construction machinery and mining machinery and equipment accounted for 69 percent of total sector U.S. exports to Canada worth \$37.5 billion. Exports of engines for use in these categories of equipment accounted for 24 percent of exports worth \$13.2 billion. Exports of pumps/motors and cylinders/actuators combined accounted for the remaining 7 percent of total sector exports at \$3.5 billion. Although U.S. CE sector exports to Canada have experienced short-term declines, long-term prospects are still positive. U.S. CE sector exports to Canada have grown 44 percent since 2000 at a Compound Annual Growth Rate (CAGR) of 2.7 percent.

After reaching a high of \$12.3 billion in 2012, U.S. CE sector exports to Canada have steadily declined to \$9.1 billion by 2015. This decline mirrored global export trends for the U.S. CE sector, as post-2008 recession spending leveled off. In addition to this post-recession spending adjustment, continued

Country Snapshot:

- Large export volume (largest U.S. CE sector export market)
- Long-term steady export growth/short-term decline
- Buyers value reliable/productive/technologically advanced products

weakness in commodity prices for oil and ore have continued to slow export demand growth. Unlike more commodity export-dependent economies such as Brazil and lesser-developed markets in Africa, Canada's more diversified economy is better positioned to minimize the current low commodity price cycle.

Canada's CE sector market is quite similar to the United States. Buyers of U.S. CE exports are primarily engaged in commercial and residential construction, forestry, mining, oil and energy production. Many U.S. CE sector manufacturers operate Canadian business units for sales, service and manufacturing. Domestic Canadian sector manufacturers also produce construction, mining and forestry equipment, as well as related service and repair parts to serve these end users.

Despite continued low prices, Canada is still a major global exporter of "in demand" commodities. Canada is a net exporter of crude oil and is the world's fifth largest producer, exporting approximately \$100 billion annually at June 2015 prices.¹¹ The country is also among the world's leading exporters of coal and gold.

Challenges and Barriers to Export

U.S. CE sector exports face low barriers to trade in Canada. As a result of the 1988 enactment of the Canada-United States Free Trade Agreement (CAFTA) and the North American Free Trade Agreement (NAFTA) in 1994, U.S. CE sector goods enter Canada duty free.¹² Further, in 2015, Canada eliminated tariffs on machinery, equipment and inputs for industrial manufacturing.¹³ To qualify for duty free treatment, however, CE sector products must satisfy NAFTA rules of origin requirements, which can be a difficult and complex task. To assist potential exporters with this requirement, the Department of Commerce maintains a website containing guidance on satisfying rules of origin requirements.¹⁴ Construction, forestry and mining business practices in the United States and Canada are quite similar, so CE sector products manufactured for the U.S. market can be exported to Canada with very little modifications beyond bilingual English/French product labeling and documentation. Federal law requires bilingual labeling (aside from name and address), manuals, instructions, and any other accompanying documentation for most products sold in Canada. Currency fluctuations directly affect prices on CE sector products for Canadian buyers. Although the U.S.-Canada currency exchange rate has remained relatively constant in recent years, continued low oil prices will likely put downward pressure on the Canadian dollar, driving up the price of U.S. CE sector exports to Canada.

Opportunities for U.S. CE Exporters

Generally speaking, the opportunity outlook for U.S. CE sector exporters is very positive. Under NAFTA, U.S. CE exporters face very few barriers to trade. In addition, the following factors further increase Canada's attractiveness as an export market:

Market stability: While low prices on many of Canada's export commodities persist, the Canadian economy is relatively stable and growing. According to the Bank of Canada, as the Canadian economy continues to adjust to sustained low commodity prices, the predicted GDP growth of 1.7 percent in 2016 will rise to 2.3 percent in 2017.¹⁵

Recognized brands: U.S. CE sector brands are well known and respected in Canada, including U.S. sector leaders such as Caterpillar and Deere.

Established dealer network: Virtually all major U.S. CE manufacturers have established dealer networks in Canada, which, in turn, feed CE sector export demand. These dealerships sell large equipment and offer comprehensive product support services. In addition, these manufacturers operate sophisticated parts distribution networks to support their dealers.¹⁶

Business environment: In addition to the benefits of free trade under NAFTA, Canada is ranked 13th in the World Bank Ease of Doing Business Index, which is a positive indicator of business friendly regulations, intellectual property rights protection, and a generally favorable export climate.¹⁷

Trade exhibitions: U.S. CE sector exporters have many opportunities to make contact with prospective Canadian buyers through trade exhibitions in North America. CONEXPO/ConAgg (Las Vegas, NV) is the largest sector trade exhibition in North America. Held every three years, the show is widely attended by Canadian buyers and exhibitors. MINExpo International (Las Vegas, NV) is the world's largest trade exhibition for the mining sector and is held once every four years. Along with annual shows World of Concrete (Las Vegas, NV) and World of Asphalt (location varies by year), which are focused on equipment used in the production and application of materials, these events provide good opportunities for U.S. CE sector exporters to reach Canadian buyers. U.S. CE exporters, particularly those without an established presence in the country, should consider visiting Canada to establish a local presence. Joining a U.S. delegation to a relevant Canadian trade exhibition is another avenue to relationship building and long-term success.

Know the Buyer

Canadian buyers favor CE sector equipment that is productive, reliable, and utilizes technology to achieve these characteristics. Although acquisition price is a consideration, equipment characteristics are the primary factor in purchase decisions. In addition to equipment characteristics, Canadian buyers demand a strong after-sales support and service network for CE sector equipment. Altogether, these characteristics put U.S. CE sector exporters in a strong competitive position.

Mexico

Mexico is the second largest market for U.S. CE sector exporters. Sector exports to Mexico of \$31.0 billion/\$6.2 billion (2011 to 2015 combined/annualized average) are more than double the next largest export market. Engines, pumps and motors, and cylinders and actuators for use in CE sector equipment accounted for two-thirds of total exports. Mexican buyers look for service, repair parts and machinery that will stand up to rental/lease applications. Continued low crude oil prices and a historically strong dollar have slowed Mexico's strong economic growth; continued modest economic gains and the country's plans to invest heavily in infrastructure development, however, should keep demand for U.S. CE sector exports high in the long-term.

Overall Rank

15

Mexico's Export Market

Mexico is the second largest U.S. export market for CE sector products. The two countries' shared border and business practices, membership in the North American Free Trade Agreement (NAFTA), and Mexico's strong and stable economy make it one of the most important sector top markets.

For the period from 2011 to 2015, cumulative U.S. CE sector exports to Mexico of \$31.0 billion (\$6.2 billion annualized average) accounted for 15 percent of the total global U.S. sector exports. U.S. exports to Mexico were more than double the next largest export market of Australia at \$13.7 billion. Exports of engines for use in CE sector equipment accounted for 62 percent of exports at \$19.1 billion.

Construction machinery and mining machinery and equipment accounted for 31 percent of total U.S. CE sector exports to Mexico at \$9.5 billion. Exports of pumps/motors and cylinders/actuators combined accounted for the remaining 7 percent of exports at \$2.4 billion.

Unlike those to the majority of other markets, U.S. CE exports to Mexico grew every year since the end of the 2008 recession until 2015, when exports declined by 21.5 percent. Despite this short-term decline, U.S. CE sector exports to Mexico have experienced long-term sustained growth. In addition to uninterrupted sector growth from 2008 to 2014, U.S. CE sector exports to Mexico grew 173.5 percent at a Compound Annual Growth Rate (CAGR) of 6.9 percent from 2000 to 2015.

Country Snapshot:

- Large export volume (second largest U.S. CE sector export market)
- Long-term steady export growth/short-term decline
- Service and repair parts are a large percentage of U.S. CE sector exports

Mexico's CE sector market differs somewhat from its NAFTA partners in the United States and Canada, and these differences are likely contributors to export growth for the U.S. CE sector. Unlike the United States and Canada, where many end users purchase equipment, a lack of capital by construction equipment end users means they are much less likely to purchase machinery outright. Instead, these users enter into rental or lease arrangements with manufacturer-affiliated or independent rental companies. Rent/lease arrangements allow access to U.S. CE sector equipment without major cash investment. This practice leads to a large lease/rental equipment base, which in turn represents an attractive market for CE sector service and repair parts. As the lease/rental equipment ages, demand for service and repair parts, including engines, rises. The high percentage of engine and service and repair parts (62 percent) as a percentage of total CE sector exports supports this observation.

The customer base for these CE sector equipment rental companies include small, medium and large contractors as well as large construction firms engaged primarily in the following sectors: oil and

gas, utility and electrical, general infrastructure, and commercial and residential construction. In addition, many U.S. CE sector companies operate Mexican business units for sales, service and manufacturing. Although Mexico does possess a significant manufacturing industry, U.S. CE sector exporters do not face any meaningful competition from domestic competitors in the sector.

Challenges and Barriers to Export

Barriers to export for U.S. CE sector goods are not significant. As a result of the enactment of the North American Free Trade Agreement (NAFTA) in 1994, U.S. CE sector goods enter into Mexico duty free.¹⁸ To qualify for duty free treatment, however, CE sector products must satisfy NAFTA rules of origin requirements, which can be a difficult and complex task. To assist potential exporters with this requirement, the Department of Commerce maintains a website containing guidance on satisfying rules of origin requirements.¹⁹

Customs documentation/compliance for export goods can be problematic. Import documentation is complex, and although not required by law, the use of a customs broker maybe necessary to successfully export from the United States to Mexico.

Mexico's largest export commodity is crude oil, and continued low prices directly affect Mexico's economic performance and forecast. Slower economic growth, as well as reduced funding for public and private infrastructure development, impact demand for U.S. CE sector exports. Currency fluctuations directly affect prices on CE sector products for Mexican buyers. The Mexican peso has continued to weaken against the U.S. dollar. After reaching an all-time high in February 2016, the U.S. dollar weakened slightly but is still up over 14 percent over the past twelve months against the peso.²⁰ Continued low oil prices will likely put further downward pressure on the peso and drive prices of U.S. CE sector exports up.

Opportunities for U.S. CE Exporters

Despite these challenges, the opportunity outlook for U.S. CE sector exporters remains positive. Under NAFTA, U.S. CE exporters face very few barriers to trade. In addition, the following factors further increase Mexico's attractiveness as an export market:

Market stability: Although low prices on crude oil persist, the Mexican economy is relatively stable and growing. The Mexican economy lost some momentum in the first half of 2015; however, economic growth of 2.3 percent is predicted to increase to 3.0 percent by 2017.²¹

Recognized brands: U.S. CE sector brands are well known and respected in Mexico, including U.S. sector leaders such as Caterpillar and Deere.

Established dealer network: Virtually all major U.S. CE manufacturers have established dealer networks in Mexico, which, in turn, feed CE sector export demand. Unlike other developed markets, end users typically rent or lease equipment for use. These dealerships, along with other independent agents, make large equipment, service and repair parts, and product support services available to end users and offer comprehensive product support services.²²

Business environment: In addition to the benefits of free trade under NAFTA, Mexico is ranked 38th in the World Bank Ease of Doing Business Index, which is a positive indicator of business friendly regulations and a generally favorable export climate.²³ Intellectual property rights protection has strengthened over the past several years due to stricter laws protecting IPR, harsher penalties for violation, and stronger enforcement at the federal level.²⁴

National Infrastructure Plan (NIP): The government of Mexico's recognition of the need for adequate infrastructure to support economic activity prompted the publication of the National Infrastructure Program (NIP) for 2014 to 2018. The NIP includes a diverse array of projects that would result in expenditures from the public and private sectors upwards of \$600 billion for upgrades in many sectors, including those for transportation, communications networks, energy (power generation, oil and gas), water, health care, urban development and housing, and tourism. Although doubts exist about the country's ability to organize, fund and execute the totality of the NIP, the plan's publication makes clear the desire for comprehensive investments in infrastructure development.²⁵

Trade exhibitions: U.S. CE sector exporters have many opportunities to make contact with prospective Mexican buyers through trade

exhibitions in North America. CONEXPO/ConAgg (Las Vegas, NV) is the largest sector trade exhibition in North America. Held every three years, the show is widely attended by Mexican buyers and exhibitors. MINExpo International (Las Vegas, NV) is the world's largest trade exhibition for the mining sector and is held once every four years. Along with annual shows World of Concrete (Las Vegas, NV) and World of Asphalt (location varies by year), which are focused on equipment used in production and application of materials, these events provide good opportunities for U.S. CE sector exporters to reach Mexican buyers. The largest and most important CE sector trade show in Mexico is Expo CIHAC (Mexico City). EXPO CIHAC is actually the largest CE sector trade exhibition in Latin America and has expanded to include a regional trade exhibition Expo CIHAC Occidente in Guadalajara.

Know the Buyer

Engines, cylinders and actuators, and pumps and motors make up two-thirds of U.S. CE sector exports to Mexico. These components are used to service a large, pre-existing equipment base. Mexican buyers look for CE sector service and repair parts that will maximize the service life of this large equipment base. As for construction equipment, Mexican buyers look for equipment that is productive, reliable, and utilizes technology to achieve these characteristics. Since much of the construction equipment exported to Mexico ends up in rental or lease applications, service life and easy, low-cost maintenance are also factors in purchase decisions.

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Australia

After a decade-long period of historic economic growth and construction driven largely by commodity exports, the Australian economy is transitioning to a more modest growth pattern as a result of lower commodity prices and a shift from construction to production. Despite these challenges and its distance from the United States, Australia is still the third largest U.S. export market for CE sector products. The Australia-United States Free Trade Agreement (AUSFTA), Australian end users' preferences for productive, reliable and technologically advanced CE sector products, and modest yet steady economic growth contribute to its desirability as a CE sector market.

Overall
Rank

4

Australia's Export Market

For the period from 2011 to 2015, cumulative U.S. CE sector exports to Australia of \$13.7 billion (\$2.7 billion annualized average) accounted for 7 percent of total worldwide U.S. sector exports. Construction machinery and mining machinery and equipment accounted for 78 percent of total U.S. CE sector exports to Australia at \$10.7 billion. Exports of engines for use in CE sector equipment accounted for 17 percent of exports at \$2.3 billion. Exports of pumps/motors and cylinders/actuators combined accounted for the remaining 5 percent of sector exports at \$635 million.

After reaching a high of \$4.8 billion in 2012, U.S. CE exports to Australia fell a total of 69 percent to \$1.5 billion by 2015. This decline mirrored global export trends for the U.S. CE sector, as post-2008 recession spending leveled off. Australia is heavily dependent on mining, oil and natural gas commodity exports, and continued low commodity prices likely contributed to the particularly sharp drop-off in U.S. sector exports. In 2014, iron, coal, gold and aluminum represented 38 percent of Australia's total exports with crude oil and natural gas contributed another 9 percent.²⁶ Continued low commodity prices will likely impact overall economic growth and demand for CE sector products.

Australia's CE sector market is quite favorable to U.S. manufacturers. Buyers of U.S. CE sector exports are engaged in commercial and residential construction,

Country Snapshot:

- Large export volume (third largest U.S. CE sector export market)
- Long-term steady export growth; however, low commodity prices are driving down current sector demand
- Buyers value reliable/productive/technologically advanced products

mining, oil and energy production, and development of infrastructure to connect the country's mainly coastal population centers with each other as well as the interior regions. End users engaged in the mining and oil and gas sectors require machinery with the highest level of productivity and reliability. In addition, Australia's geography and population distribution requires considerable CE sector equipment usage in remote locations. U.S. CE sector manufacturers are both well-known and respected, with established dealer networks for sales and service. Strong competitors from Western Europe, Japan and South Korea, however, represent a challenge for U.S. companies competing in the Australian market in the high productivity/reliability category. Domestic Australian CE sector manufacturers do not constitute meaningful competition for U.S. CE sector exporters.

U.S. CE sector exports to Australia have declined sharply over the past two years; however, long-term positive economic indicators continue to make Australia an important and favorable market for CE

sector exporters. U.S. CE sector exports to Australia have grown 130.3 percent since 2000 at a Compound Annual Growth Rate (CAGR) of 5.7 percent. Australia's GDP is projected to increase by 2.8 percent in 2016 and 3.0 percent in 2017.²⁷ The country recorded 23 consecutive years of economic growth through 2014, fueled primarily by commodity exports. Although the continued downturn in commodity prices has influenced economic performance, Australia is still positioned to benefit long-term when prices rebound.

Challenges and Barriers to Export

Barriers to export for U.S. CE sector goods are low. Enactment of the Australia-United States Free Trade Agreement (AUSFTA) on January 1, 2005 granted immediate, duty free treatment to CE sector goods.²⁸ Although not particularly difficult or complex, duty free treatment for U.S. CE sector products is contingent upon satisfaction of rules of origin requirements. AUSFTA does not share a common "rules of origin" documentation process with NAFTA²⁹, so exporters more familiar with exporting to Canada or Mexico should be aware that they would need to complete documentation applicable to this agreement to receive duty free status.

Although U.S. CE sector exports face low barriers to trade in Australia due to AUSFTA, exporters do encounter challenges. Australia has entered into FTAs with South Korea³⁰ and China,³¹ and an economic partnership with Japan,³² which individually result in the reduction or elimination of tariffs on imports of CE sector goods from these countries. Japanese and Korean CE sector products are comparable to U.S. products in terms of productivity and reliability, so duty free entry of products from these countries represents a particular challenge.

A weaker Australian dollar over the past twenty-four months has dampened CE sector demand. After trading at or above parity as recently as April 2013, the Australian dollar fell to a low of 0.68 against the U.S. dollar in January 2016 before recovering slightly, effectively reducing Australian buyers' purchasing power for U.S. CE sector products by more than 25 percent.³³

The primary current challenge for U.S. CE exporters, however, is the transition from a construction to production economic cycle. Low commodity prices and a weaker Australian dollar contribute to decreased demand, and the transition away from historic growth activity to more normal levels of construction activity will only continue to depress demand for U.S. CE sector products in Australia.

Opportunities for U.S. CE Exporters

Although the challenges brought by a transitioning economy are very real, Australia remains an overall favorable export market for U.S. CE sector goods in the long-term. The following factors enhance Australia's attractiveness as an export market:

Duty free trade status for CE sector goods: Under AUSFTA, virtually all properly documented CE sector goods enter into Australia duty free. Construction and mining business practices in the United States and Australia are similar, and there are no language/translation issues with product labeling or documentation.

Market stability: As previously mentioned, Australia's long-term market stability represents a favorable export climate for U.S. CE sector players. Despite the transition from a commodity export-led construction cycle to a more normal production-focused period, modest GDP growth and an eventual recovery in commodity prices will likely sustain demand for U.S. CE sector products.

Recognized brands: U.S. CE sector brands are well known and respected in Australia. U.S. sector leaders such as Caterpillar and Deere are recognized brands and their products are widely available.

Established dealer networks: Virtually all major large U.S. CE manufacturers have well-established dealer networks, either independent or through affiliated manufacturers. These dealerships sell large equipment and offer comprehensive product support services in addition to sophisticated parts distribution networks to support their dealers.

Business environment: In addition to the benefits of free trade under AUSFTA, Australia is ranked 12th in the 2015 World Bank Ease of Doing Business Index, which is a positive indicator of business friendly regulations, intellectual property rights protection, and a generally favorable export climate.³⁴

Trade exhibitions: Although Australia is less geographically proximate than other U.S. FTA partners, U.S. CE sector exporters still have opportunities to make contact with prospective Australian buyers through trade exhibitions in North America. CONEXPO/ConAgg (Las Vegas, NV) is the largest sector trade exhibition in North America. Held every three years, the show is widely attended by Australian buyers and exhibitors. MINExpo International (Las Vegas, NV) is the world's largest trade exhibition for the mining sector and is held once every four years. Along with annual shows World of Concrete (Las Vegas, NV) and World of Asphalt (location varies by year), which are focused on equipment used in production and application of materials, these events provide good opportunities for U.S. CE sector exporters to reach Australian buyers. Australia's most prominent CE sector trade show is the Australian Construction Equipment (ACE) Expo in Melbourne. An ACE Expo was to be held in eastern Australia in Brisbane in 2015; however, according to the event organizer the event was postponed due to acknowledgement of the current state of the Queensland market and rescheduled to 2016.³⁵ CIVENEX is Australia's premier infrastructure trade show with a focus on exhibitors supplying

equipment for local governments, public works and major contractors. This year's event will be held in Richmond, New South Wales.³⁶ The biennial Asia Pacific International Mining Exhibition (AIMEX) is the region's largest mining products trade exhibition. AIMEX will next be held in Sydney in August 2017.³⁷

Know the Buyer

Australian buyers are very similar to U.S. buyers of CE sector products. Construction and mining equipment make up 79 percent of total exports, and users engaged in the mining and oil and gas sectors demand machinery with the highest level of productivity and reliability that can work in difficult/remote environments and locations with limited onsite support. With the general slowdown of construction activity in Australia, however, buyers are becoming increasingly cost-conscious. Availability of lower-end, lower-cost Chinese CE products presents buyers with a viable alternative, and improvements in productivity and reliability of these products will make them an increasingly attractive alternative.

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China

China is the fourth largest U.S. export market for CE sector products and the largest non-FTA export market. Sector exports of \$9.9 billion/\$2.0 billion (2011 to 2015 combined/annualized average) reflect the trend of long-term export growth and near-term declines. Strong competition from domestic manufacturers, as well as the Chinese government's efforts to support domestic production, will continue to challenge U.S. exporters. CE sector exports will likely continue to decline, and it is therefore important for U.S. companies to understand fully the challenges and opportunities inherent in exporting to China.

Overall Rank

2

China's Export Market

For the period from 2011 to 2015, cumulative U.S. CE sector exports to China of \$9.9 billion accounted for 4.9 percent of total global U.S. sector exports. Construction machinery and mining machinery and equipment accounted for 44.0 percent of total sector U.S. exports to China at \$4.6 billion. Exports of engines for use in these categories of equipment accounted for 45.0 percent of exports at \$4.7 billion. Exports of pumps/motors and cylinders/actuators combined accounted for 11.0 percent of total at \$1.1 billion.

After reaching a high of \$2.7 billion in 2011, annual U.S. CE exports to China have decreased 51 percent to \$1.3 billion in 2015. The initial decline mirrored global export trends for the U.S. CE sector, as post-2008 recession spending leveled off. Continued and sharp declines in exports, however, reflect the overall competitive landscape in the Chinese CE market.

China's CE sector market is dominated by domestic manufacturers, particularly at the whole-goods/machinery level. Chinese manufacturers such as Sany, SDLG, Liugong and Zoomlion have rapidly expanded their product offering over the past twenty years. Chinese manufacturers' equipment is not typically equivalent to that of leading US, Japanese, and European producers from a productivity, reliability and technology standpoint. Chinese manufacturers, however, are narrowing the gap through acquisitions, mergers, and joint ventures with non-Chinese competitors.³⁸ Lower manufacturing costs in China, coupled with

Country Snapshot:

- Large export volume (fourth largest U.S. CE sector export market)
- Slowing economic growth effect on exports offset by urbanization/infrastructure growth
- U.S. sector exporters face strong domestic competition

improving domestic product offerings, present a challenge to U.S. CE sector machinery exporters. Buyers of U.S. CE exports are primarily engaged in commercial and residential construction, infrastructure development, mining, oil and energy production. China's government-sponsored National Plan for New Urbanization and One Belt One Road initiatives will likely continue to drive demand for CE sector products through construction activities in urban areas as well as land and maritime transit between China and regional trade partners.³⁹ Additionally, China's status as the largest global consumer of coal, and exploration of untapped oil reserves in western interior provinces and offshore, will drive demand for CE sector products.⁴⁰

Since 2000, U.S. CE sector exports to China have grown by 467.2 percent and a Compound Annual Growth Rate (CAGR) of 12.3 percent. Sector export declines since 2011, however, will likely continue as China's overall economic growth slows. As domestic Chinese competitors continue to improve their products, U.S. CE sector exporters' productivity/reliability/technology advantages will decrease, placing potential further downward pressure on exports.

Challenges and Barriers to Export

China's slowing economy: China's sustained, double-digit economic growth is slowing. According to the United States Commercial Service Country Commercial Guide for China, GDP fell to 7.4 percent in 2014, down from 7.7 percent in 2013 and 10.4 percent in 2010. GDP growth is now at its lowest in 25 years.⁴¹ As the Chinese economy continues to settle into a more normal growth cycle, demand for CE sector products will likely be affected.

Intellectual property (IP) protection: IP security remains a serious concern for CE sector exporters to China. Despite efforts to improve protection and enforcement of IP rights, China remains on the USG Priority Watch List in the 2015 Special 301 Report, particularly in the area of theft of trade secrets. Such theft occurs inside and outside of China for the competitive advantage of Chinese state-owned and private companies.⁴²

Chinese competitors: Chinese domestic CE manufacturers offer significantly cheaper products. Rather than compete directly with U.S. CE exporters, Chinese producers are positioning their equipment as a "value" alternative (i.e. less expensive) while becoming increasingly competitive from a productivity/reliability/technology standpoint.

Opportunities for U.S. CE Exporters

Government sponsored growth initiatives: Government sponsored growth and development initiatives will increase demand for CE sector products to build out residential/commercial construction and infrastructure to realize the goals of these plans. Most prominent amongst these initiatives is the 2014 National Plan for New Urbanization, which aims to increase the percentage of China's population living in urban areas to 60 percent (up from 54 percent in 2014).⁴³ The One Belt One Road Economic Cooperation framework aims to concentrate economic cooperation throughout Eurasia through policy coordination, facilities connectivity, trade, and financial integration. Cooperation on facilities/infrastructure connectivity between China and neighboring countries may

present sector export opportunities for U.S. CE sector products through construction activities.⁴⁴

Energy consumption: China's is the world's largest energy consumer and second largest oil consumer. As the country's oil demand increases, efforts to find new sources in the western provinces and offshore areas will increase, driving demand for CE sector equipment to construct exploration and refinery facilities as well as infrastructure to service them.⁴⁵

Business environment: China is ranked 84th (out of 189) in the World Bank Ease of Doing Business Index, which is a positive indicator of business friendly regulations, access to finance and a generally favorable export climate.⁴⁶

Trade exhibitions: U.S. CE sector exporters have many opportunities to make contact with prospective Chinese buyers through trade exhibitions in North America. CONEXPO/ConAgg (Las Vegas, NV) is the largest sector trade exhibition in North America. Held every three years, the show is widely attended by Chinese buyers and exhibitors. MINExpo International (Las Vegas, NV) is the world's largest trade exhibition for the mining sector and is held once every four years. Along with annual shows World of Concrete (Las Vegas, NV) and World of Asphalt (location varies by year), which are focused on equipment used in production and application of materials, these events provide good opportunities for U.S. CE sector exporters to reach Chinese buyers.

Know the Buyer

Chinese buyers have two distinct choices for CE sector purchases: U.S., Japanese, and European CE sector equipment that is more productive, reliable, and technologically advanced, or lower-cost but less productive/reliable Chinese products. Chinese manufacturers are developing and refining their products through their own exports and collaborations abroad and carving out a new "value technology" segment for their lower tech/less expensive products. Selling Chinese buyers on the benefit of U.S. CE sector products is the primary challenge for potential exporters.

Vietnam

Vietnam is a growing market for U.S. CE producers with sector exports of \$387 million/\$77.4 billion (2011 to 2015 combined/annualized average). Construction machinery and engines make up the majority of CE sector exports. Although urbanization and infrastructure growth push Vietnamese buyers towards CE sector products with superior reliability and productivity, less-costly Chinese products are widely available and an attractive alternative to U.S. CE products. Passage and enactment of the Trans-Pacific Partnership (TPP), which would eliminate tariffs of up to 59 percent on U.S. CE sector products, would also place exporters in a much more favorable competitive position in Vietnam.

Market to Consider

Vietnam's Export Market

Vietnam's strong and rapidly growing economy, improving business environment, and population of 93 million combine to create an inviting commercial environment. The Vietnamese economy will require increasingly large investments in residential/commercial construction and infrastructure. Although some challenges and barriers exist, U.S. CE sector exporters should look to Vietnam as an attractive potential market.

For the period from 2011 to 2015, cumulative U.S. CE sector exports to Vietnam totaled \$387 million. Construction machinery and engines for use in CE sector machinery accounted for 82 percent of total sector exports at \$319 million. Mining machinery and equipment accounted for 15 percent of total sector U.S. exports to Vietnam at \$57 million. Exports of pumps/motors and cylinders/actuators combined accounted for the remaining 3 percent of total sector exports at \$11 million. Despite year-on-year gains and losses, the long-term trend of U.S. CE sector exports to Vietnam is positive. U.S. CE sector exports have grown 1400 percent since 2000 at a Compound Annual Growth Rate (CAGR) of 19.8 percent.

After reaching a post-2008 global recession high of \$78.4 million in 2011, U.S. CE sector exports to Vietnam fell 33 percent to \$52 million in 2012, then rose again to an all-time high of \$121.3 million by 2015. This decline mirrored global export trends for the U.S. CE sector as post-2008 recession spending leveled off. In addition to this post-recession spending adjustment, continued weakness in

Country Snapshot:

- U.S. CE sector export growth amongst largest for all markets
- Urbanization/infrastructure growth will drive CE sector demand
- Passage of TPP will help U.S. sector exporters compete with Chinese producers

commodity prices for oil and ore have continued to slow export demand growth.

Vietnam's CE sector market is quite different in comparison to large export volume markets such as Canada, Mexico and Australia. In these markets, U.S. CE sector exporters can compete on product quality, reliability and technology due in large part to well-developed dealership networks. These dealers contribute to brand awareness and provide a comprehensive sales and service network that support their products. In addition, potential cost impacts are mitigated somewhat by free trade agreements in these countries. By comparison, U.S. CE exporters' dealer presences in Vietnam are much more limited. Vietnam's proximity to China also provides Chinese CE manufacturers easy access for their lower-cost products.

Buyers of U.S. CE exports are primarily engaged in commercial and residential construction, infrastructure, oil and energy production. Vietnam does not possess any meaningful CE sector manufacturing capability and therefore depends almost exclusively on imported machinery.

Challenges and Barriers to Export

Despite some strong opportunities, U.S. CE sector exporters do face challenges in accessing Vietnam's CE sector.

Business ethics: According to the United States Commercial Service Country Commercial Guide, implementation of the country's anti-corruption laws is problematic. Corruption and administrative red tape within the government of Vietnam remains a challenge for foreign companies doing business in Vietnam.⁴⁷ Vietnam now ranks 112th (out of 167) on Transparency International's 2015 Corruption Perceptions Index (Malaysia 54th, Thailand 76th, China 83rd, Indonesia 88th, and Philippines 95th).⁴⁸

Intellectual property (IP) protection: IP protection and enforcement are concerns in Vietnam, which in 2015 remained on USTR's Special 301 Watch List. According to industry indices, Vietnam ranks 85th out of 129 globally, 15th out of 20 in Southeast Asia⁴⁹ and last among the TPP countries⁵⁰ in quality of intellectual property rights protections – though it is noted that Vietnam perhaps has the most to gain from successful implementation of the TPP. As reported by the United States Commercial Service in Vietnam, many businesses, both foreign and domestic, found ineffective protection of intellectual property to be a significant challenge to doing business.⁵¹

High tariffs on CE sector products: Pending passage of the Trans-Pacific Partnership (TPP), U.S. CE sector exporters currently face tariffs of up to 59 percent in Vietnam. By comparison, Chinese CE sector exports face much lower duties.⁵²

Low cost competition from China: Low-cost CE products represent a serious challenge to U.S. CE exporters. Lower acquisition cost for Chinese goods mitigates U.S. CE producers' productivity/reliability/technology advantages in the Vietnamese market.

Opportunities for U.S. CE Exporters

Despite challenges and barriers, the opportunity outlook for U.S. CE sector exporters is positive and improving. Robust economic growth, consistent and growing investment in infrastructure development, challenges in the economic relationship between Vietnam and China, and new economic

opportunities under the Trans-Pacific Partnership (TPP) contribute to a strong CE sector export climate.

Economic growth: For the period from 2011 to 2015, Vietnam's GDP growth was 6.0 percent.⁵³ More specifically, GDP growth attributed to construction and industry was 8.35 percent for the first quarter of 2015.⁵⁴ Despite the Vietnamese economy's dependence on a number of currently low-priced commodity exports, near-term GDP growth is predicted to continue at 6.5 percent in 2016 and 6.7 percent in 2017.⁵⁵

Implementation of major infrastructure projects: Concurrent to strong GDP growth, Vietnam has experienced a high level of investment in infrastructure development. For the first ten years of this century, infrastructure development investment averaged 9 to 10 percent of GDP.⁵⁶ With an estimated need for infrastructure investment of \$200 billion by 2020 to sustain current levels of growth, Vietnam's Ministry of Planning and Investment has launched a plan to encourage infrastructure investment through public-private-partnerships (PPP).⁵⁷

Trans-Pacific Partnership (TPP): Currently, U.S. CE sector exporters face tariffs of up to 59 percent in Vietnam. Vietnam's membership in TPP will immediately reduce duties on 82.9 percent of machinery, including U.S. CE sector products, and 99.5 percent of CE products within four years.⁵⁸

Business environment: In addition to the benefits of free trade under TPP, Vietnam's business environment continues to improve. Vietnam advanced from 99th in 2014 to 90th (out of 189) in the World Bank 2015 Ease of Doing Business Index.⁵⁹

Trade exhibitions: U.S. CE sector exporters have many opportunities to make contact with prospective Vietnamese buyers through trade exhibitions in North America. CONEXPO/ConAgg (Las Vegas, NV) is the largest sector trade exhibition in North America. Held every three years, the show is widely attended by Vietnamese buyers and exhibitors. MINExpo International (Las Vegas, NV) is the world's largest trade exhibition for the mining sector and is held once every four years. Along with annual shows World of Concrete (Las Vegas, NV) and World of Asphalt (location varies by year), which are focused on equipment used in production and

application of materials, these events provide good opportunities for U.S. CE sector exporters to reach Vietnamese buyers.

Know the Buyer

Vietnamese buyers have two basic choices for CE sector purchases: (1) U.S., Japanese, and European CE sector equipment with superior productivity, reliability, and technology or (2) less productive/reliable/advanced, yet lower-cost, Chinese products. Unlike some other export

markets, U.S. CE sector exporters do not have a well-developed dealer network that can maximize brand awareness/product knowledge and provide strong after-sales support and service. Despite the price difference and dealer network challenges, strong sector export growth to Vietnam would indicate that buyers increasingly favor more productive, reliable, and technologically advanced CE sector products.

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Addendum: Resources for U.S. Exporters

The U.S. Government has numerous resources available to help U.S. exporters: from additional market research, to guides to export financing, to overseas trade missions, to staff around the country and the world. A few key resources are highlighted below. For additional information about services from the International Trade Administration (ITA), please visit www.export.gov.

Country Commercial Guides

<http://export.gov/ccg/>

Written by U.S. Embassy trade experts worldwide, the Country Commercial Guides provide an excellent starting point for what you need to know about exporting and doing business in a foreign market. The reports include sections addressing market overview, challenges, opportunities and entry strategies; political environment; selling U.S. products and services; trade regulations, customs, and standards; and much more.

Basic Guide to Exporting

<http://export.gov/basicguide/>

A Basic Guide to Exporting addresses virtually every issue a company looking to export might face. Numerous sections, charts, lists and definitions throughout the book's 19 chapters provide in-depth information and solid advice about the key activities and issues relevant to any prospective exporter.

Trade Finance Guide: A Quick Reference for U.S. Exporters

<http://www.export.gov/tradefinanceguide/index.asp>

Trade Finance Guide: A Quick Reference for U.S. Exporters is designed to help U.S. companies, especially small and medium-sized enterprises, learn the basics of trade finance so that they can turn their export opportunities into actual sales and achieve the ultimate goal of getting paid on time for those sales. Concise, two-page chapters offer the basics of numerous financing techniques, from open accounts to forfaiting and government assisted foreign-buyer financing.

Trade Missions

<http://www.export.gov/trademissions/>

Department of Commerce trade missions are overseas programs for U.S. firms that wish to explore and pursue export opportunities by meeting directly with potential clients in local markets. Trade missions include among other activities: one-on-one meetings with foreign industry executives and

government officials that are pre-screened to match specific business objectives.

Certified Trade Fairs

http://www.export.gov/eac/show_short_trade_events.asp?CountryName=null&StateName=null&IndustryName=null&TypeName=International%20Trade%20Fair&StartDate=null&EndDate=null

The Department of Commerce's trade fair certification program endorses overseas trade shows that are a reliable venue and a good market for U.S. firms to sell their products and services abroad. These shows serve as a vital access vehicle for U.S. firms to enter and expand to foreign markets. The certified show/U.S. pavilion ensures a high-quality, multi-faceted opportunity for American companies to successfully market overseas. Among other benefits, certified trade fairs provide U.S. exhibitors with help facilitating contacts, market information, counseling, and other services to enhance their marketing efforts.

International Buyer Program

<http://export.gov/ibp/>

The International Buyer Program (IBP) brings thousands of international buyers to the United States for business-to-business matchmaking with U.S. firms exhibiting at major industry trade shows. Every year, the International Buyer Program results in millions of dollars in new business for U.S. companies by bringing pre-screened international buyers, representatives and distributors to selected shows. U.S. country and industry experts are on site at IBP shows to provide hands-on export counseling, market analysis, and matchmaking services. Each IBP show also has an International Business Center, where U.S. companies can meet privately with prospective international buyers, prospective sales representatives, and business partners and obtain assistance from experienced ITA staff.

The Advocacy Center

<http://www.export.gov/advocacy/>

The Advocacy Center coordinates U.S. government interagency advocacy efforts on behalf of U.S. exporters bidding on public-sector contracts with overseas governments and government agencies. The Advocacy Center helps to ensure that sales of U.S. products and services have the best possible chance competing abroad. Advocacy assistance is wide and varied but often involves companies that want the U.S. Government to communicate a message to foreign governments or government-owned corporations on behalf of their commercial interest, typically in a competitive bid contest.

U.S. Commercial Service

<http://www.export.gov/usoffices/index.asp>

With offices throughout the United States and in U.S. Embassies and consulates in nearly 80 countries, the U.S. Commercial Service utilizes its global network of trade professionals to connect U.S. companies with international buyers worldwide. Whether looking to make their first export sale or expand to additional international markets, companies will find the expertise they need to tap into lucrative opportunities and increase their bottom line. This includes trade counseling, actionable market intelligence, business matchmaking and commercial diplomacy.

Appendix 1: Methodology Detail

ITA's methodology for identifying top markets for U.S. CE sector exports utilized a combination approach that considered historical export trade data as well as factors, or "drivers," of global CE sector trade. In ITA's view, export data provided a quantifiable evaluation of top U.S. CE sector export markets from a historical perspective. Based upon its understanding of the global CE sector market, ITA then examined a number of factors that drive export demand for CE sector products. Factors with readily available, quantifiable and consistently defined data on a country-specific basis were selected. Numerical values were assigned to these factors and the weighted average values for each of the factors were aggregated to arrive at a final numerical score for each market. In ITA's view, this list of markets represents some of the best opportunities for U.S. CE sector players to sustain and carry CE sector export growth forward.

Trade Data

For the historical sector export analysis, the CE sector was identified using the North American Industry Classification System (NAICS). NAICS is the USG standard used by statistical agencies to classify business establishments for the purpose of collecting, analyzing and publishing statistical data related to the U.S. economy. Therefore, defining the CE sector via NAICS codes allowed the United States to use data collected by the U.S. Bureau of the Census for export analysis.

The following NAICS codes, which correspond to those used for the National Export Initiative (NEI) Sector Action Plan for Construction Machinery and Related Equipment, are covered by this report:

- 333120 Construction Machinery Manufacturing: This industry is comprised of establishments primarily engaged in manufacturing construction machinery, surface mining machinery, and logging equipment.
- 333131 Mining Machinery and Equipment Manufacturing: This U.S. industry is comprised of establishments primarily engaged in (1) manufacturing underground mining machinery and equipment, such as coal breakers, mining cars, core drills, coal cutters and rock drills, and (2) manufacturing mineral beneficiating machinery and equipment used in surface or underground mines.
- 333618 Other Engine Equipment Manufacturing: This U.S. industry is comprised of establishments primarily engaged in manufacturing internal combustion engines (except automotive gasoline and aircraft).
- 333995 Fluid Power Cylinder and Actuator Manufacturing: This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and pneumatic) cylinders and actuators.
- 333996 Fluid Power Pump and Motor Manufacturing: This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and pneumatic) pumps and motors.

Utilizing the five selected NAICS codes, the top 25 U.S. CE sectors export markets based on cumulative exports from 2011 to 2015 are as follows:

1. Canada
2. Mexico
3. Australia
4. China
5. Brazil
6. Chile
7. United Kingdom
8. Belgium
9. South Africa
10. Germany
11. Singapore
12. Peru
13. Russia

14. Colombia
15. Saudi Arabia
16. Japan
17. India
18. Korea
19. France
20. United Arab Emirates
21. Netherlands
22. Venezuela
23. Argentina
24. Sweden
25. Italy

Export Drivers

Infrastructure Development: Global infrastructure development is perhaps the primary driver of CE export growth and sustained demand. Building new infrastructure and maintaining existing infrastructure require large amounts of construction machinery to accomplish.

A comprehensive data source that captured not only the existence of infrastructure activity, but also the investment climate for future infrastructure spending and activity, and downstream effects of infrastructure growth would be the most informative indicator. Based on these criteria, data from the Second Global Infrastructure Investment Index 2014, an annual report produced by ARCADIS NV, was used. ARCADIS is a Netherlands-based, globally-recognized design, engineering and management consulting firm with over 130 years of experience. ARCADIS currently has 28,000 employees and projects in over 70 countries.⁶⁰ The ARCADIS Report ranks the world's 41 most dynamic countries with the greatest potential for, and investment in, infrastructure development based on a number of criteria including economic health, ease and risk of doing business, state of existing infrastructure and access to finance.⁶¹

Residential and commercial construction: Similar to infrastructure development and maintenance, residential and commercial construction activities require large amounts of construction machinery.

Finding an appropriate data source to quantify residential and commercial construction was problematic. Despite a considerable amount of research, no single reliable and consistent source for this data by country was identified. The next step was to examine data on the building materials used in construction, including steel, concrete, asphalt, glass and wood products. After comprehensive research, country specific usage data for steel in the 2015 World Steel Association Steel Statistical Yearbook was identified.⁶² This report thus used country specific data contained in Apparent Steel Use (crude steel equivalent) for 2013, which is the most recent available annual data.

Economic activity: Producing, buying, or selling products or services is a driver for the construction of commercial property that is necessary to produce, buy and sell goods and services. Consumers engaging in these activities are, in turn, potential buyers of new homes/residential construction. In addition, economic activity requires adequate infrastructure to move goods and services from producer to seller to buyer. ITA wanted to capture both the absolute value of spending in potential markets, as well as economic growth trends. Therefore, ITA used the 2014 gross domestic product (GDP) reports by country and the 2010 to 2014 average GDP growth to capture current and trend data.⁶³

Aggregation of weighted average factors

Utilizing export trade data and export driver surrogate data, the final list of top markets was developed using the following methodology:

Using the ARCADIS 2014 Global Infrastructure Investment Index rankings, ITA selected an initial “base” list comprised of the top 25 markets. Based on historical exports of CE sector products, ITA elected to add Brazil (32nd) and Russia (34th) to the list of top 25 ranked infrastructure markets for a base list of 27 markets. ITA assigned a numerical value of 20 to the highest ranked infrastructure market, 19 to the second highest, and so on to a value of 1 for the 20th infrastructure market. Markets 21 through 25, Russia, and Brazil were assigned a value of 0.

Using this base list of 27 countries, ITA re-ranked the 27 markets in four new lists for each of the countries based on the following data:

Raw Steel Usage 2014 (World Steel Association)
Gross Domestic Product 2014 (World Bank)
Average GDP Growth 2010 to 2014 (World Bank)
U.S. Sector Exports 2011 to 2015 (by NAICS codes and data from U.S. Bureau of the Census)

As with the ARCADIS Infrastructure Index list, ITA assigned a value of 20 to 1 for the top 20 countries and a value of 0 for those markets ranked 21st and lower for each lists.

ITA then applied a weighted average multiplier to the numerical scores for each of the lists as follows:

ARCADIS Infrastructure Investment Index - 40 percent
Raw Steel Usage - 10 percent
GDP - 20 percent
Average GDP Growth – 10 percent
U.S. Sector Exports – 20 percent

Finally, ITA aggregated the weighted average scores for the five factors by country and rank-ordered the 27 markets based on their total numerical score, resulting in the following list of CE sector top markets:

1. Canada
2. China
3. Singapore
4. Australia
5. UK
6. Germany
7. Japan
8. Qatar
9. UAE
10. Saudi Arabia
11. Brazil
12. Chile
13. India
14. Sweden
15. Mexico
16. Malaysia
17. Russia
18. Norway
19. South Korea
20. Netherlands
21. France
22. Belgium
23. Indonesia
24. Thailand
25. South Africa

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